



Pre-Wetting: What and Why?

Two questions – what is pre-wetting? Why is it worth doing? Let's get them answered.

Pre-wetting is adding a certain amount of liquid to solids prior to placing those solids on the road surface. Now that statement needs a bit of unpacking, so let's do it.

First, what solids do we pre-wet? Typically, it is salt or sand, but we could also pre-wet other solids that we might be placing as an ice control material. For now, we will say it is salt or sand.

Next, what liquids do we pre-wet with? The most common are salt brine, magnesium chloride brine, and calcium chloride brine. However, these liquids may well have other "stuff" in with them. For example, magnesium chloride brine and calcium chloride brine typically have corrosion inhibitors added. And some agencies may blend their brines with organic materials. But for now, let's assume that we will use a liquid that is a typical ice control liquid – one of the three chlorides mentioned above.

When do we add those liquids? Well, traditionally there have been three ways of adding liquids to the materials.

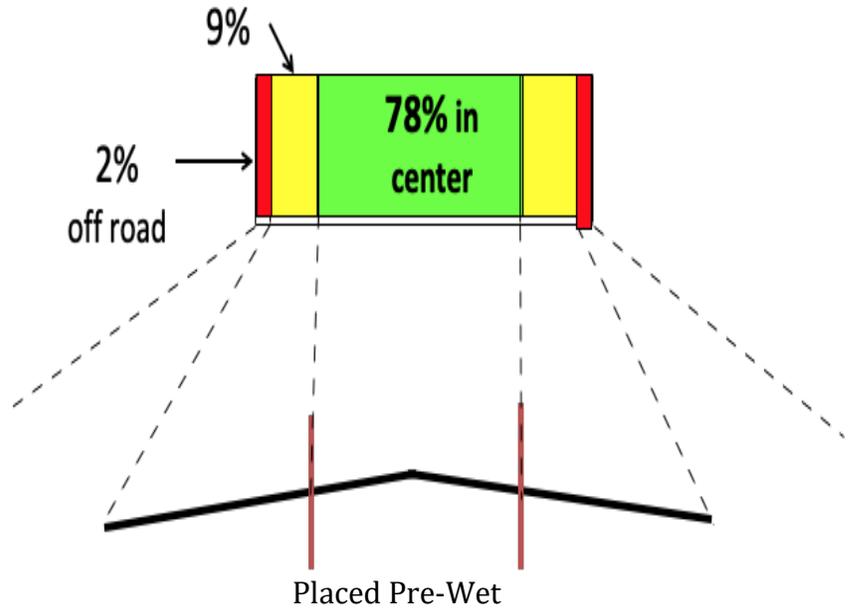
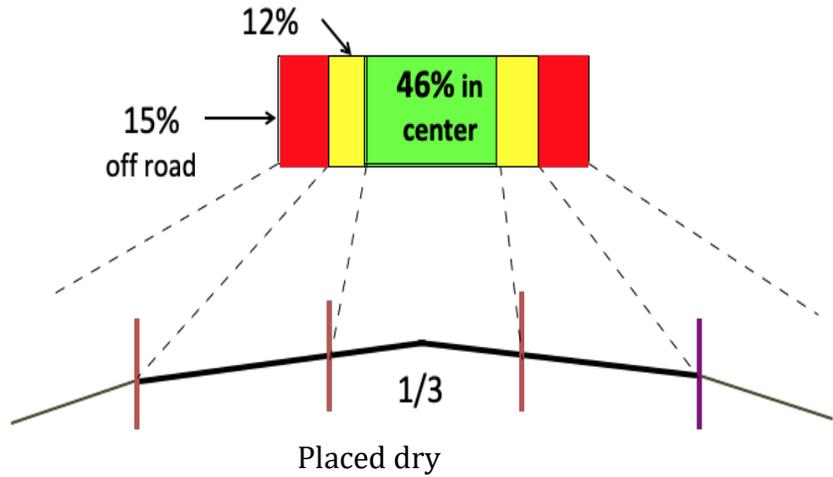
First, we can pre-treat our stockpile with a liquid. As indicated, this is often referred to as pre-treating, and we will have more information on this process on a one pager under that topic. **Second**, we can take our truck and run it under a sort of shower system, that dumps a set quantity of liquid on each load of material in our truck. This used to be a common practice but is less so today for a few reasons. First, this does not get our solid material evenly coated, and so we do not get the same benefits for all the load. Second if we have material left at the end of a shift, it is now wetted and putting it back into the stockpile may not be ideal – even worse this can lead to the practice of "oh, I have got to use all my salt before I get back to the barn" which inevitably leads to salt being over-applied and wasted.

Third, we can pre-wet on the truck itself. To do this we need to have liquid on the truck (in either saddle tanks or perhaps tailgate tanks – there are other options too). We will also need pumps to take that liquid and mix it with the salt. And we must decide where to do the mixing – two options in use are at the auger or at the spinner. Both work, and the choice seems at present to be a matter of choice and something you should discuss with your spreader equipment supplier.

So that covers the what, but what about the why? Pre-wetting helps us in two ways. First, it keeps the material stuck to the road more effectively. The chart below demonstrates how much more effectively, but basically if you put material down dry on the road, about 25 to 30% will bounce straight into the ditch. Material in the ditch does not help cars on the road. By the time the car is on the ditch we have kind of lost the fight, if you will.

The second benefit of pre-wetting is that it gets the salt working more quickly and more effectively. In short, for salt to work it needs to go into solution. If it does not go into solution, it will not prevent freezing and will not be any good for us at all. To go into a solution, it must get wet. What people have found is that pre-wetting the salt allows it to be effective at temperatures below those at which dry salt works.

Final issue – how much should I pre-wet my material? Typical rates are in the range of 8-12 gallons per ton, but some agencies are using much more liquid and seeing some amazing results (see the slurries one pagers for more info on this). A final note – pre-wetting does allow you to reduce salt application rates and maintain the same effectiveness, but you will only see the benefits of the reduced rates if you actually reduce the application rate yourself! It sounds obvious but there have been a few issues on exactly this point. So, yes, pre-wet, and turn down your application rate too!



Pre-Wetting
Helps materials adhere to the pavement surface
Helps the salt work more quickly. For salt to work it needs to be in solution.
It helps reduce salt application rates.

